Transcutaneous electrical nerve stimulation in combination with cobalamin injection for post-herpetic neuralgia: A single-center randomized controlled trial

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Keywords: Post-herpetic neuralgia; Transcutaneous electrical nerve stimulation; Cobalamin; Randomized clinical trial

Introduction.– To explore the efficacy of transcutaneous electrical nerve stimulation (TENS) with locally injected cobalamin in relieving pain and improving activities of daily living (ADL) in patients with post-herpetic neuralgia (PHN).

Observations.– Ninety patients (≥ 50 years old) with PHN with pain score ≥ 4 were randomized to receive TENS and local injections of cobalamin (T-MB group) or lidocaine (T-LD group) or a combination of cobalamin and lidocaine (T-BL group) for 8 weeks. Treatment efficacy was assessed based on worst pain severity, global impression of change, ADL, and QoL.

Time × group interaction, group differences, and time effect on worst pain at each follow-up point were statistically significant ($P < 0.05$) among groups. In the T-MB and T-BL groups, the mean pain scores were 4.0 ± 1.4 and 4.1 ± 1.2 at endpoint, 28 and 26 patients achieved $\geq 30\%$ pain reduction, and 14 and 10 perceived worst pain ≤ 3, respectively. The ADL and QoL data at the study endpoint showed significant benefits in the T-MB and T-BL groups ($P < 0.05$). In the T-LD group, the mean pain score was 6.1 ± 1.2 at the endpoint relative to baseline ($P < 0.05$), and only six patients achieved $\geq 30\%$ pain reduction.

Discussion.– TENS in combination with local cobalamin injection has a significant analgesic effect.

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P316-e

Safety and effectiveness of long-term exercise training of patients after lower limb arterial blood flow surgery

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Keywords: Rehabilitation; Safety; Supervised exercise therapy

Introduction.– Cardiovascular rehabilitation that includes exercise training has the potential to benefit patients with peripheral arterial disease (PAD) by improving functional capacity and reducing cardiovascular events [1]. The aim of this study was to evaluate the safety and effectiveness of exercise training in patients after lower limb bypass surgery.

Methods.– The study included 59 patients who were randomized to two groups. While the rehabilitation group (RG) had the supervised exercise therapy (SET) for 6 months, the control group (CG) did not have any SET. Patients were assessed at baseline and 6 months after intervention. We evaluated all observed adverse events. Functional capacity was evaluated by a 6-minute walking test.

Results.– No significant differences in groups were observed in endpoint to combine of repeat hospitalization outcomes. A significant difference ($P = 0.05$) was observed in hospitalization for cardiovascular disease (CD). There were fewer CD in RG. A significant improvement was observed in the total walking in RG ($P = 0.01$).

and myocardial infarction, thus it is very important to refer patients after lower limb bypass surgery to rehabilitation.

Reference

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P317-e

A case report of rehabilitation treatment after carbon monoxide poisoning

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Keywords: Encephalopathy; Mental health; Physiotherapy; Occupational therapy

Introduction.– Hypoxic encephalopathy is a complication of carbon monoxide poisoning, which is rarely a concern in the treatment of streamlines. Due to the complex nature of functional and cognitive impairment, however, is a challenge to the use of therapies based streamlines physiotherapy, neuropsychological therapy and occupational therapy.

Observations.– The presentation describes the case of 46-year-old female after carbon monoxide poisoning. She was forwarded to the department after stabilization of vital problems in the intensive therapy ward. The presentation shows the models used in the treatment of patients depending on the abnormality as well as the benefits derived from the methods. During hospitalization changes in behavior and cognitive skills was observed in the patient. Therefore, Cerebrolysin with a comprehensive rehabilitation applied based physiotherapy, occupational therapy and cognitive therapy. Due to the rapidly changing state of psychophysical patient, increasing behavioral problems, coordination, balance, behavior therapy group underwent frequent modifications. After staying in the ward dexterity and co-ordination of movement, prolonged concentration, abstract thinking as well as improve fresh memory and perceptive was improved.

Discussion.– Comprehensive rehabilitation including Cerebrolysin treatment, based on physical therapy, occupational therapy and neuropsychologist assessment is the basis for the patient's rehabilitation after carbon monoxide poisoning.

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P318-e

Helping patient with diabetes through physical activity

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Keywords: Physical activity; Glycemy; Lifestyle

Sedentary life style and limited spare time influenced the faster grow of the number of diabetics. Those individuals feel tired, without enthusiasm or motivation, have no qualitative life and this is the primary reason of inactivity, followed by organic complains which advance vital problems. The goal of our study is to apply physical activity with the purpose of improving glycemy value, improvement of muscular strength and improvement of diabetic neuropathy. Study has included 45 patients with diabetes mellitus of different ages, 30 of them belonging to the working group and 15 of them to the control group. For one month these individuals were followed for: glycemy, neuropathy signs, muscular strength,

improvement of muscular strength, improvement of subjective state. Quality of life has improved in all working group with slogan "Be Active Live The Life".

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P319-e

Development of continuous passive motion (CPM) devices using air pressure system

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Keywords: Continuous passive motion (CPM) device; Pneumatic pump
Introduction.– There were many continuous passive motion (CPM) devices for upper extremity using mechanical motor, which have applied forceful range of motion (ROM) exercise without sensing the patient's compliance. It could raise the problem of excess movement over the safety range. The aim of our study was to develop CPM device using air pressure system, which has advantages of gentle, gradual movements and biofeedback between the patient and device.
Material and methods.– We reviewed the treatment protocol of ROM exercise in the wrist and finger, especially in patients with increased spasticity. For gradual increment of angle and movement, we decided to use multi-air bag system at each joint. In addition, we developed to make the device sense the angle and pressure in patients, not to exceed the safety range and pressure.
Results.– We developed the CPM device for the wrist and finger using multi-air bag system with pneumatic solenoid valves. It could exercise the wrists and fingers progressively with bi-directional biofeedback between the patient and the device for the safety ROM and pressure.
Discussion.– Further studies for clinical implementation should be needed in the patients with spasticity or contracture for evaluating the efficacy and safety.

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P320-e

The effects of electrical stimulation on selected anthropometric trunk parameters

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Keywords: Electrical stimulation; Obesity; Anthropometric parameters
Introduction.– Two methods are used for decreasing body mass. Firstly, active methods in which the person takes part in physical activities. Second, inactive methods in which there is no requires physical activities, e.g. usage electrical stimulation.
Materials and methods.– In this clinical trial, 50 subjects were randomly put in two groups of case & control. Although both groups received similar diet, subjects in case group had true electrical stimulations, while controls had sham stimulations. After intervention and also follow up period which last four weeks, parameters of body weight, BMI, fat thickness in umbilicus and supra-illiac levels were measured in two groups of study.
Results.– There was a significant difference between the mean values of body weights in case group before and after electrical stimulation ($P < 0.001$). There was a significant difference between the mean values of abdomen circumference in case group before and after electrical stimulation ($P < 0.001$).
Discussion.– This study showed that electrical stimulation does not prefer than diet recommendations to reduce abdominal circumference, fat thickness in umbilical and supra-iliac levels in obese subjects. It seems that electric stimulations have most effects immediately after using this stimulation & in short term manners in abdominal circumference.

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P321-e

Low-level laser therapy as a possible resource to improve muscle regeneration in rats

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Introduction.– The effects of LLLT were studied during muscle regeneration through gene expression.
Methods.– It was evaluated 10 and 50 J/cm^2 doses during 7, 14 and 21 days post-cryoinjury, through histopathological analysis and mRNA MyoD, Myogenin, VEGF and Cox-2 expression.
Results.– Irradiated groups presented less inflammatory process than control group after 14 and 21 days. Cox-2 levels were downregulated in all irradiated groups after 7, 14 and 21 days. On day 7, both treated groups had a downregulation of VEGF levels, and an upregulation after 14 and 21 days, mainly with 50 J/cm2. The MyoD levels were upregulated with high dose in all periods and with low dose after 21 days. Myogenin expression was downregulated in both treated groups after 7 days, and was upregulated with 10 J/cm^2 after 21 days.
Conclusion.– These responses suggest that LLLT can improve the skeletal muscle regeneration through the gene expression stimulation.

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P322-e

Uni- or bilateral vibration effect during postural control for young adults

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Keywords: Posture; Vibration; Proprioceptive cues; Center of pression
Objective.– Proprioceptive inputs from legs provide the most sensitive means of perceiving postural sway. The vibration of muscle tendons has become a frequent tool for studying the relative role of muscle proprioception in human postural control. Our objective is to determine how proprioceptive inputs from these muscles influence the entire postural control.
Methods.– We applied bilateral or unilateral vibration on Achilles or Peroneus tendons to 21 young adults in standing position. The center of pressure and the covered length were computed (we analyze on periods of 4 s).
Results.– In all conditions, we observed a backward shift of the CoP. The extreme backward position was reached before the suspension of vibration at around 12–16 seconds after displacement didn't evolve any more. Y-min position was always more posterior for BiVib compared to UniVib but was reached at a similar time for all conditions.
Conclusions.– The dependence of the magnitude of CoP shift on duration of vibration appears not true after 16 s of vibration. We highlight phenomena of cerebral saturation of proprioceptive inputs, depending on time and not on amplitude of the displacement, with a new position of reference. The return to the initial state is longer when both hemispheres were stimulated.

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P323-e

Effect of elastic taping on obstacle crossing for the stroke patients with foot drop

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Keywords: Foot drop; Taping; Obstacle crossing; Stroke